

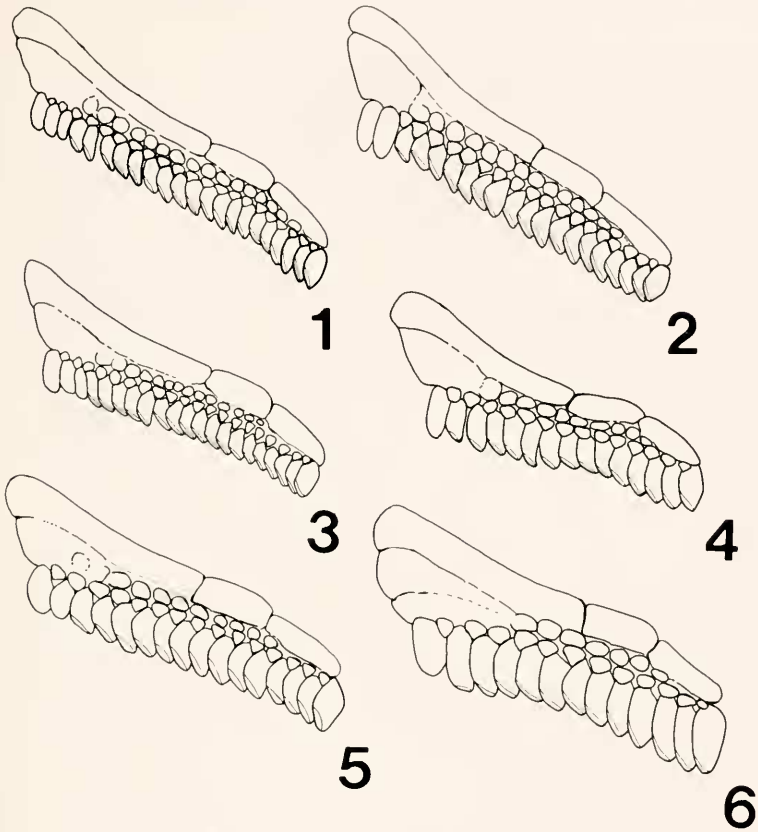
**VEJOVIS CALIDUS, A NEW SPECIES OF SCORPION
FROM COAHUILA, MEXICO (SCORPIONIDA: VEJOVIDAE)¹**

Michael E. Soleglad²

In 1972 I presented a set of characters that I thought best defined the wupatkiensis group of the genus *Vejovis*. Recently, Dr. Herbert L. Stahnke called to my attention an interesting character found on the pectines of the female members of this group. After having examined many species of *Vejovis* I feel this character should be included in the wupatkiensis group definition. This character can be described as follows. Proximal pectinal teeth 1 and 2 of female members are elongate and symmetric in shape, longer than the other adjacent racket-shaped teeth. The sensorial areas of these teeth are absent. The most proximal fulcrum sometimes is reduced, or rarely missing (fig. 2). This character holds true for most species in the wupatkiensis group, but is very variable within a species and sometimes even on a single specimen. The variability of this character may present itself in the following manner. The elongate symmetric form is sometimes found on tooth 1 only, or rarely, on proximal teeth 1-3, showing up in a lesser degree on tooth 3. Occasionally the distal portion of the proximal teeth is slightly angled, approaching the normal racket-shaped form of the other teeth. In some cases the sensorial area is present but somewhat reduced. *Vejovis joshuaensis* Soleglad provides a distinct deviation from this character however, by displaying a very stunted proximal tooth which is much shorter than the other teeth. This stunted form is also present in a somewhat lesser degree on *V. calidus*, new species. Figures 1-6 illustrate this character for various wupatkiensis group species.

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² 1502 Dupont Dr., Lemon Grove, California 92045



- FIG. 1. *Vejovis harbisoni* Williams, pectin of female.
 FIG. 2. *Vejovis subtilimanus* Soleglad, pectin of female.
 FIG. 3. *Vejovis deserticola* Williams, pectin of female.
 FIG. 4. *Vejovis gertschi gertschi* Williams, pectin of female.
 FIG. 5. *Vejovis calidus*, new species, pectin of holotype female.
 FIG. 6. *Vejovis joshuaensis* Soleglad, pectin of female.

Vejovis calidus, new species
 Figures 5, 7-13, 15

Diagnosis: Small species of wupatkiensis group defined by following characters: Cauda very wide, first two segments definitely wider than long, segment III wider on female only; inferior median keels smooth to obsolete on caudal segment I, smooth to crenulate on II-III, and crenulate on IV. Chelal movable finger of female approximately same length as carapace and fifth caudal segment; equal to carapace only on male. Pectinal tooth counts 15-17 for female and 17 for male. Subaculear tubercle essentially obsolete. *Vejovis gertschi gertschi* Williams and *V. joshuaensis* Soleglad closest relatives, key characters differentiated in Table 1.

ETYMOLOGY: Specific name from Latin *calidus*, warm or hot, based on the hot climate of the Cuatro Ciénegas basin of Coahuila, Mexico where the type specimens were found.

TABLE I
CHARACTERS OF SOME *VEJOVIS* SPECIES
OF THE WUPATKIENSIS GROUP

	<i>V. calidus</i> , new species	<i>V. gertschi gertschi</i> Williams	<i>V. joshuaensis</i> Sologlad
Coloration of Carapace	Yellow grey; faded brown pattern on anterior and lateral areas	Yellow brown; dark distinct variegated pattern on entire surface	Yellow brown; faded to dark distinct variegated pattern on entire surface
Pectinal tooth Counts	Male, 17 Female, 15-17	Male, 16-18 Female, 14-16	Male, 13-15 Female, 12-14
Proximal Tooth of Pectines of Female	Equal to length of other teeth	Longer than other teeth	Stunted, definitely shorter than other teeth
Inferior Median Keels of Cauda	Obsolete to smooth on segment I, smooth to crenulate on II-III, crenulate on IV	Crenulate on segments I-IV	Weakly crenulate on segments I-II, crenulate on III-IV
Caudal Segment III	Width greater than length on female	Width equal to length	Width equal to length
Supernumerary Teeth	Fixed finger, 6 Movable finger, 7	Fixed finger, 6 Movable finger, 7	Fixed finger, 4 Movable finger, 5
Trichobothrium <i>it</i> to Fixed Finger Ratio (Figs. 13-14)	Ratio 42/100; distal to supernumerary tooth 5	Ratio 37/100; proximal to supernumerary tooth 5	Ratio 30/100
Geographical Distribution	State of Coahuila, Mexico (single record)	Extreme southern coastal California; Northern coastal Baja California	Colorado Desert; Southern Mojave Desert

HOLOTYPE. Female (fig. 7). Coloration: Base color dull grey yellow; legs dull yellow. Anterior edge of carapace with variegated brown markings, extending through lateral eyes; faint brown markings found lateral to median ocular tubercle, extending to carapace midpoint. Proximal area of chelal fingers and chelal carinae faintly pigmented brown; fifth caudal segment and telson brown dorsally; posterior half of segment IV, and all of segment V brown ventrally. Three faint, wide brown stripes on vesicle venter. Subtle brown pigmentation on femur and patella of walking legs.

STRUCTURE: Measurements of holotype female, allotype male, and female paratype given in Table 2.

CARAPACE: Interocular area rough but essentially void of granulation, remainder of carapace covered sparsely with small granules. Anterior edge broadly indented, set with six setae (fig. 8). Lateral eyes three per side, posterior eye smallest. Median eyes situated anterior of middle, in ratio 115/330, one-fifth width of carapace at that point.

PREABDOMEN: Tergites covered with medium sized granules, more concentrated posteriorly. Smooth median keel weakly defined on tergites III-VI; two pairs of serrate keels on tergite VII. Sternites smooth with short slit-like stigmata; one pair of crenulate lateral keels and one pair of very weak median keels present on sternite V.

CAUDA: First three segments wider than long. Segments I-IV: Dorsal and dorsal lateral keels serrate, ending in elongate spine on dorsal keels of segments I-IV and on dorsal lateral keels of I-III. Lateral keels crenulate on segment I, crenulate on posterior two-fifths of II, posterior one-third of III, and absent on IV. Inferior lateral keels smooth to crenulate on segment I, weakly crenulate on II-III, and crenulate on IV. Inferior median keels smooth to obsolete on I, smooth to crenulate on II-III, and crenulate on IV; inferior median keels equipped with 3-3-3-3 pairs of setae. Segment V: Dorsal keels serrate on extreme anterior, granulate on remainder. Lateral keels granulate on anterior three-quarter. Inferior lateral and median keels crenulate. Intercarinal spaces generally smooth except for slight scattered granulation on dorsal face.

TELSON: Vesicle polished, essentially void of definite granulation; 6-8 pairs of small setae on ventral and lateral aspects. Vesicle width and depth less than width of caudal segment V. Subaculear tubercle essentially obsolete (figs. 9-10). Aculeus average length and curve, 2-3 small pairs of setae at base.

TABLE 2
MEASUREMENTS (IN MILLIMETERS) OF
Vejovis calidus, new species

	Holotype Female	Allotype Male	Paratype Female
Total length	20.75	16.3	20.5
Carapace, length	3.3	2.5	3.3
Width at lateral eyes	1.7	1.3	1.7
Width at caudal edge	3.0	2.1	3.2
Preabdomen, length	6.3	4.9	6.5
Postabdomen, length	11.15	8.9	10.7
Caudal segment I			
Length	1.5	1.2	1.5
Width	2.0	---	2.0
Depth	1.55	---	1.6
Caudal segment II			
Length	1.75	1.3	1.7
Width	2.0	1.55	2.0
Depth	1.55	1.15	1.6
Caudal segment III			
Length	1.9	1.5	1.8
Width	1.95	1.5	1.95
Depth	1.55	1.2	1.6
Caudal segment IV			
Length	2.5	1.9	2.4
Width	1.9	1.45	1.9
Depth	1.5	1.2	1.55
Caudal segment V			
Length	3.5	3.0	3.3
Width	1.85	---	1.9
Depth	1.55	---	1.55
Telson, length	3.3	2.4	3.2
Vesicle			
Length	1.9	1.4	1.9
Width	1.4	0.95	1.4
Depth	0.95	0.6	0.95
Aculeus, length	1.4	1.0	1.3
Pedipalp, length	11.2	8.4	11.1
Femur			
Length	2.8	2.2	2.8
Depth	0.9	0.6	0.9
Tibia			
Length	3.2	2.4	3.2
Depth	1.2	0.8	1.1
Chela, length	5.2	3.8	5.1
Palm			
Length	1.9	1.4	1.8
Width	1.35	1.0	1.35
Depth	1.2	0.8	1.1
Fixed finger, length	2.9	2.0	2.8
Movable finger, length	3.4	2.4	3.3
Pectines			
Teeth	15/16	17/17	16/17
Middle lamellae	10	10	10

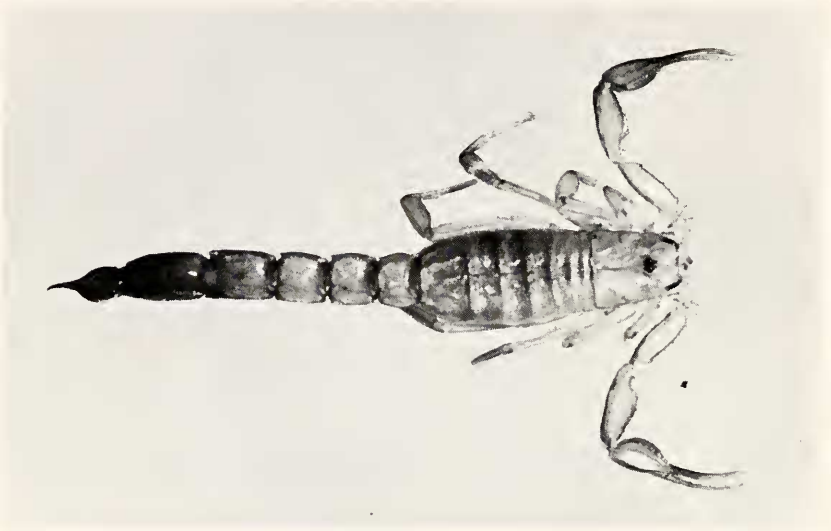


FIG. 7. *Vejovis calidus*, new species, holotype female, dorsal view.

PECTINES: Proximal tooth somewhat rounded, lacking sensorial area, equal in length to other teeth. Second proximal tooth variable, same as tooth 1 but smaller, or racket-shaped as other teeth. Pectin length to width ratio 5/1.5. Pectinal tooth counts 15/16, middle lamellae 10. Scattered small brown setae on exterior edges of anterior lamellae, 2 setae on most middle lamellae, and 3 setae on fulcra. Basal piece indented on anterior half; length to width ratio 5/9.

GENITAL OPERCULUM: Essentially fused on entirety, slight separation on extreme distal tips (fig. 12).

CHELICERAE: Chunky appendages with short fingers. Ventral edge of movable finger smooth with heavy growth of serrulae on distal half. Other dentition standard for genus. Distal tip of fixed finger meets dorsal distal tip of movable finger when fingers closed.

PEDIPALPS: Slender appendages, femur and tibia roughly three times as long than wide; chelal fingers elongate, movable finger approximately same length as carapace and fifth caudal segment. Femoral carinae crenulate to serrate; dorsal and ventral faces smooth, outer face crenulate to serrate; approximately 10 small to medium granules in two roughly formed rows on inner face. Dorsal inner carina of tibia smooth or weakly granulated; dorsal outer carina crenulate to serrate; ventral inner carina smooth; ventral outer carina smooth to crenulate. Dorsal and ventral faces smooth; outer face rough but lacking definite granulation; 10 medium sized granules formed in one line on inner face. Chelae with eight carinae structured as follows: Inner secondary and inner carinae roughly crenulate to serrate; inner accessory carina smooth with minute granulation distally; superior carina smooth and polished; outer and outer accessory carinae smooth to rough; inner ventral carina weak and smooth; inferior carina weakly granulate. Fingers long with exaggerated distal teeth, overlapping when fingers closed (fig. 11); movable finger more than one and one-half times longer than palm; single row of highly serrate teeth on edges; fingers slightly

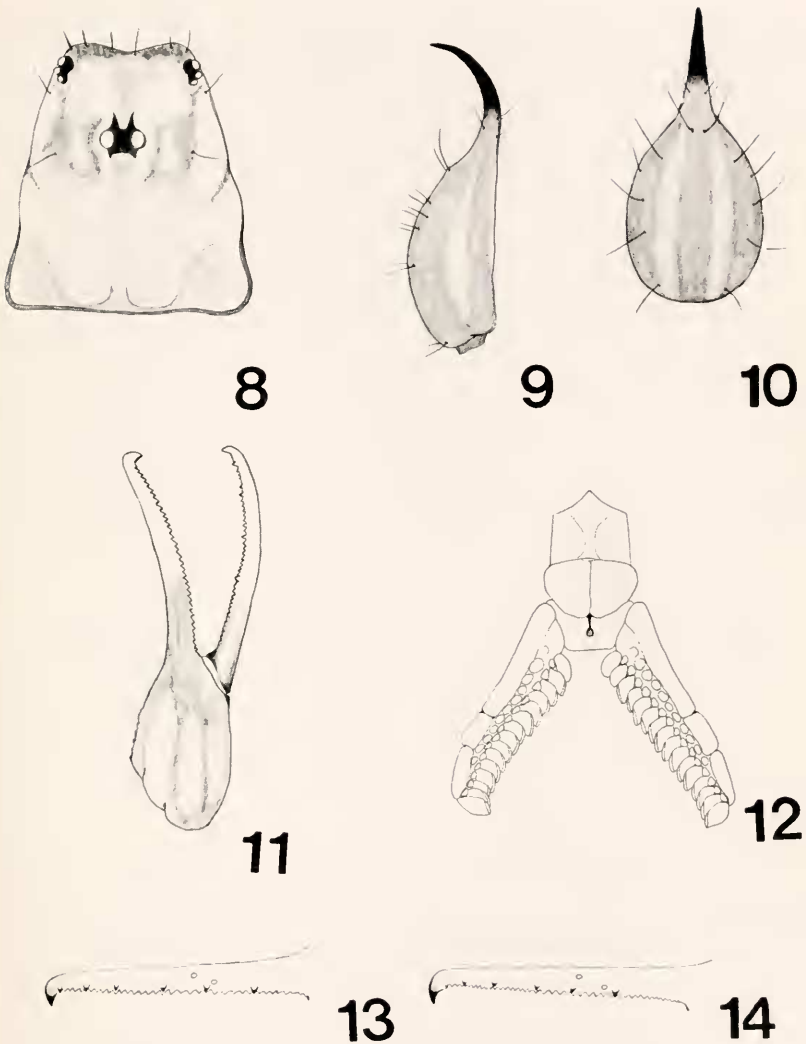


FIG. 8. *Vejovis calidus*, new species, carapace of female.

FIG. 9. *Vejovis calidus*, new species, telson of female, lateral view.

FIG. 10. *Vejovis calidus*, new species, telson of holotype female, ventral view.

FIG. 11. *Vejovis calidus*, new species, chela of holotype female.

FIG. 12. *Vejovis calidus*, new species, sternum, genital operculum, and pectines of holotype female.

FIG. 13. *Vejovis calidus*, new species, fixed finger of holotype female, inner view.

FIG. 14. *Vejovis gertschi gertschi* Williams, fixed finger of female, inner view.

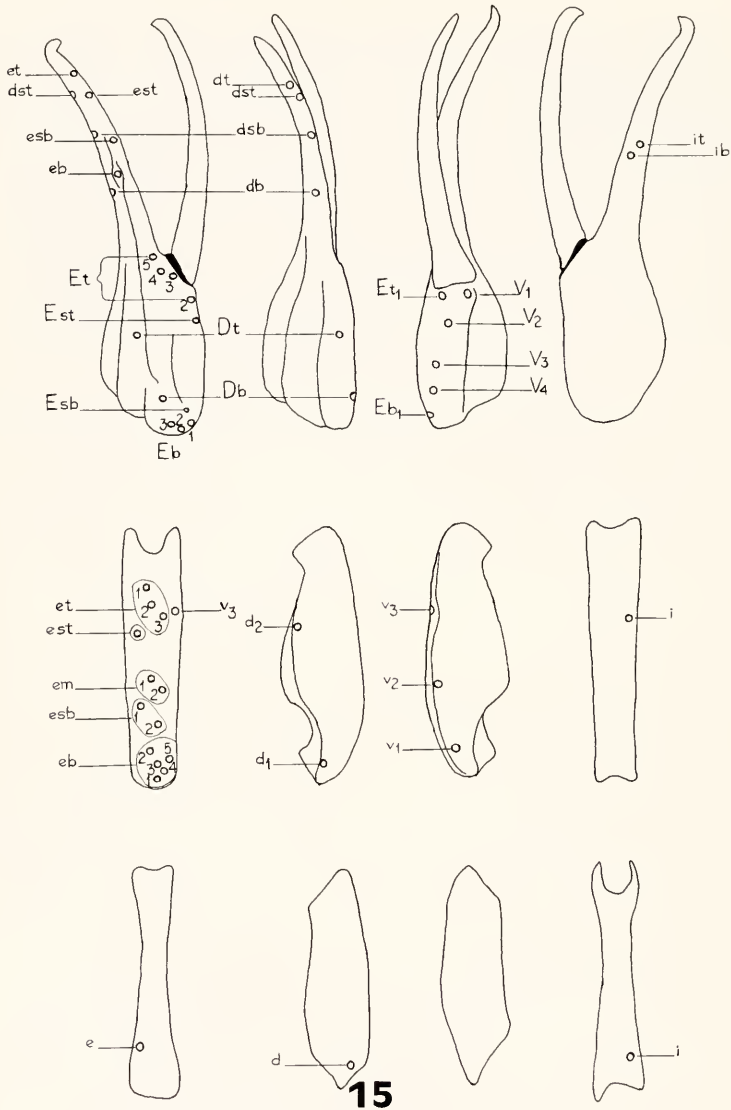


FIG. 15. *Vejovis calidus*, new species, trichobothrial pattern of holotype female, chela (top row), tibia (middle row), femur (bottom row). External (left column), dorsal (left middle column), ventral (right middle column), and internal (right column) views. Letter abbreviations: E and e, external; D and d dorsal; V and v, ventral; i, internal; b, basal; t, terminal; m, median; sb, suprabasal; st, subterminal.

scalloped distally. Supernumerary teeth of medium development, 6 and 7 for fixed and movable fingers respectively. Trichobothrial counts standard for family, 26 chela, 19 tibia, and 3 femur, pattern as shown in figure 15. Internal trichobothria of chela placed proximally on fixed finger, in ratio 42/100 (measured at trichobothrium *it*); trichobothrium *it* distal to supernumerary tooth 5. (fig. 13).

WALKING LEGS: Small median row of ventral spines on tarsus; five delicate carinae on patella, all granulate to crenulate. Unques short, sharply curved.

ALLOTYPE. Male: Smaller than female in overall size. Movable finger shorter than caudal segment V; pectines larger, length to width ratio 6/2.3; tooth counts larger on average, 17. Genital operculum separated medianly, genital papillae visible externally.

PARATYPE VARIATION: Single female paratype presented no deviation from holotype female except for larger number of pectinal teeth, 16/17.

TYPE DATA: Female holotype and male allotype from 2 miles east of Cuatro Ciénegas, Coahuila, Mexico, August 10, 1973 (L. R. Erickson, M. E. Soleglad). The holotype and allotype are permanently deposited in the American Museum of Natural History.

DISTRIBUTION: Known from type locality only.

RECORDS: Coahuila, Mexico: 2 miles east Cuatro Ciénegas, August 10, 1973 (L. R. Erickson, M. E. Soleglad), 2 adult females and 1 adult male.

COMMENTS: This uncommon species was encountered in a very rocky terrain. The rocky terrain coupled with the species ability for rapid locomotion made this a difficult scorpion to collect. All three specimens were encountered by the use of ultraviolet light detection.

LITERATURE CITED

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1972. Two New Scorpions of the Wupatkiensis Group of the Genus *Vejovis* (Scorpionida: Vejoividae). The Wasmann Journal of Biology, vol. 30, nos. 1 and 2, pp. 179-195.

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ABSTRACT: A new species of the wupatkiensis group of the genus *Vejovis*, *Vejovis calidus*, is described. This new scorpion is from Cuatro Ciénegas, Coahuila, Mexico. — Michael E. Soleglad, 1502 Dupont Dr., Lemon Grove, California 92045.

Descriptors: Scorpionida; scorpion; Vejoividae; wupatkiensis group; *Vejovis calidus*; Coahuila, Mexico.